

died during delivery. The last pain was so violent that the woman was convulsively raised from her bed. Nine days after her delivery, Dr. RIEKE was called to the patient, and found on examination a luxation of the pubis; the symphysis was broken, and the left side carried half an inch at least behind the right. The external genital parts and vagina, were much tumefied, nevertheless the urine and lochia flowed freely. The patient complained of pain in the region of the symphysis, and she could not walk. The patient having been placed on her back, Dr. Rieke applied his hands upon the crista ilea, and pushing backwards, endeavoured to separate them as far as possible, in order to restore the pubis to its natural situation; but he could not apply this force long in consequence of the violent pain it occasioned to the patient. Nevertheless, after several trials, this succeeded on the second day, whilst the patient held her legs flexed upon her thighs. From the moment that the luxation was reduced the patient could walk. To relieve the unsteady walking, and close the articulation, the patient was directed to wear for some time a bandage similar to a truss. On examination, it was found that the descending branches of the pubis formed an acute angle which contracted the inferior straight.—*Heidelberger Klinische Annalen*, B. vii. S. 3. 1831.

CHEMISTRY.

45. *New Method of Preparing Medicinal Prussic Acid*.—RICHARD LAMING, Esq. recommends the following formula for the preparation of medicinal prussic acid by the extemporaneous decomposition of cyanuret of potassium:—Take of Cyanuret of potassium, 22 grains; Tartaric acid crystals, 50 grains; Distilled water, 6 fluid drachms; Rectified spirit, 3 fluid drachms; in a phial capable of containing eleven or twelve fluid drachms. Dissolve the tartaric acid in the water and the spirit, previously mixed together, and suffered to become quite cold; then add the cyanuret of potassium, and immediately close the phial with a sound cork. After occasional agitation during ten minutes, secure the cork and set the phial aside, for the supertartrate of potass to precipitate—when the clear solution may be decanted for use.

The medicinal solution thus made, Mr. Laming states, is “always of the same strength; nor is it an insignificant recommendation, its being much less liable to spontaneous decomposition than the sorts made in any other way.

“There has been an impediment in the adoption of such a formula, in the delicacy of the cyanuret of potassium; no plan heretofore having been discovered for its formation in a state of purity. The few specimens of this salt which I have been able to collect, have all exhibited a variety of hues, depending on particular contaminations; and in some instances they were found to contain large quantities of carbonic acid. The prussic acid made with them was usually, in consequence, of a deep yellow colour; but at times it was obtained green, and brown, and blue.

“The accompanying cyanuret of potassium is pure, and I believe the first specimen ever obtained in a state of purity. By analysis I have found its composition to be—

Cyanogen	-	-	3.25	×	8	=	26
Potassium	-	-	5	×	8	=	40
			8.25				66.0

and that of anhydrous prussic acid being

Cyanogen	-	-	3.25	×	8	=	26
Hydrogen	-	-	.125	×	8	=	1
			3.375				27.0

“We have, of course, in every 66 grs. of cyanuret, an equivalent for 27 grains of absolute acid; and this number being allotted, in the new formula, to 27

drachms of liquid, every 60 minims of the medicinal prussic acid will contain precisely one grain of the strong medicine. The relative strengths afforded by the known formulas stand thus:—

		Number of Grains of absolute Prussic Acid in 60 Minims of Medicinal Solution.	
Plan by	Formula by	Real.	Estimated.
Scheele.	Scheele.	1½	8
Pharm. Dublin.	Pharm. Dublin.	1 or 1½	1½
Gea Pessina.	Henri.	unknown.	20
Proust. (both ascribed to Vauquelin.)	Pharm. Gallica.	1 or about.	1½
Vauquelin & Gay Lussac.	Magendie.	7	7
	Robiquet.	20	20
New Plan.	New Formula.	1	1

“This table will explain the reason why one grain in a fluid drachm has been adopted for the new formula: in the first place, it is about the strength which experimentally results from the only process at present sanctioned by either of the British Pharmacopœias; it is also near to that of the medicinal acid usually called Vauquelin’s; and from Scheele’s it differs by about half a grain, on that side which will be a guarantee against a careless dispenser of prescriptions doing mischief, should he mistake the newly-introduced medicine for his. In addition to this, it has been thought to afford facilities for the correct estimation of a dose.”—*Lond. Med. Gaz. Sept. 1833.*

46. *Test for Hydrocyanic Acid, and Method of appreciating the Quantity.*—We are informed by Mr. JOHN T. BARRY, that the nitrate of silver, in common with other salts of that metal, is so extremely delicate a test of the presence of hydrocyanic acid, that its detection is not difficult in a drop of water containing far less than the *ten thousandth part of a grain* of that poisonous agent. For instance, if one minim of the dilute medicinal solution be mixed with a pint of water, its presence may be demonstrated in a single drop of the mixture. But what is of more consequence is, that although the mixture be contaminated with various organic substances, such as those contained in articles of diet, milk, coffee, tea, porter, wine and soups, so far as is yet known the test retains its sensibility unimpaired. Mr. Barry, however, thinks that this extreme sensibility, while it renders the evidence of the silver test conclusive as to the *absence* of prussic acid, will be of more limited service in establishing its *presence*, for, without adverting to the possibility of other volatile substances being hereafter discovered to have a similar effect on solution of silver, it is to be borne in mind that this reagent indicates the existence of prussic acid in some esculent substances where it had previously been found, as well as in some new ones. Upon this branch of the subject medical jurists will probably think it right to collect information.

The application of the solution of silver is simple. The suspected fluid is to be acidulated by the addition of acetic acid, but so as to redden litmus paper

in only the *slightest degree*. If excess of acid be already present, it is to be *not quite* neutralized by carbonate of soda. These precautions are adopted to retard the interference of ammonia or muriatic acid. Two or three drops, quite cold, are then put into a watch glass, and immediately covered by a plate of glass, whose under surface, to the breadth of a pea, is moistened with solution of nitrate of silver, formed by dissolving one grain lunar caustic in 100 grains distilled water:—

If the inverted drop of silver solution retain its transparency unaltered, the *absence* of prussic acid is established; for had it been present, the silver solution would in a few moments have become clouded by the formation of a *white* precipitate, an effect which, indeed, is almost instantaneous when the prussic acid is not excessively diluted. If, on the other hand, the precipitate appear, the conclusion must not be drawn, that it is *cyanuret* of silver, until identified as such by two properties:—first, its speedy *re-solubility*, as denoted by the clouded drop becoming again clear, when *placed over* a vessel of caustic ammonia, in which respect it differs from the silver compounds of iodine and bromine:—and secondly, in retaining *unchanged* its pure white colour after exposure a few minutes to the sun's rays, or for a longer time to day-light. As this property essentially distinguishes it from the compound of silver with chlorine, it is important to establish it by a separate experiment upon a somewhat larger portion of the precipitate, which should be obtained by candle-light, by successively placing the inverted drop of nitrate of silver over renewed portions of the liquid in a saucer, as soon as the precipitate separates into distinct curd-like particles, it is ready for exposure to the solar rays.

Another property which distinguishes the cyanide, (or cyanuret,) of silver from the chloride, is, that upon being ignited in an open short glass tube, the cyanogen burns with a flame of the usual colour, leaving the metal pure, if sufficiently heated,—a quality the more valuable as it furnishes an index to the *proportion* of prussic acid it represents, which upon ordinary occasions may be estimated as equal to one-fourth the weight of residual silver.

When, acting upon this principle, it is desirable to ascertain the *entire* quantity of prussic acid, it is to be obtained by slowly distilling over, in nearly filled close vessels, about an eighth of the acidulated mixture under examination; rectifying it; reacidulating by acetic acid; precipitating by *slight* excess of nitrate silver; washing with distilled water, only so long as the washings affect litmus paper; drying at 212° ; weighing:—and lastly, igniting and re-weighing.

The medicinal solution above referred to, (as to be diluted for experiment in the proportion of one drop to the pint of water,) contains, in round numbers, nearly a sixteenth of its own weight of anhydrous prussic acid, or rather less than four grains in the drachm, being the article, (commonly designated “of Scheele's strength,”) as manufactured by some respectable houses in London. We understand that Messrs. William Allen and Co., by means of silver as a reagent, have uniformly concentrated it to this degree since the year 1820, when Mr. Barry introduced the use of that metal to determine and regulate its proportion of absolute prussic acid by the formation of cyanuret of silver. The method being one which admits of extreme precision, will deserve the attention of the College of Physicians, if prussic acid be inserted in the next Pharmacopœia. It is to be recollected that this preparation, like those of alcohol or æther, is subject to variation, notwithstanding any superiority of formula, or care on the part of the operator. Hence the necessity of means for assaying the final product and for reducing it to a uniform standard. With regard to the employment of cyanuret of potassium for the occasional formation of hydrocyanic acid, it is a question which at least deserves very serious consideration. Its disposition to absorb atmospheric moisture, and always to become more or less converted into carbonate, while its cyanogen, (united to hydrogen,) to an uncertain extent is dissipated, especially when this beautiful salt is much disintegrated, constitute formidable difficulties. But a still greater objection will present itself at the counters of apothecaries and chemists where medicines are

made up, from the possibility of this intensely poisonous salt being sometimes mistaken for other substances, in the frequent extemporaneous production of prussic acid.—*The London and Edinburgh Philos. Mag. &c. February, 1834.*

47. *On Cusparia from Angustura Bark.*—M. SALADIN obtains *cusparia* from *angustura* bark by the following process: Digest seven parts of the bark in 20 parts of alcohol, of sp. gr. 0.795, without heat: let the spirit evaporate gradually at a very low temperature. After some days have elapsed, there will be observed very slight mammellated crystalline appearances, in a magma of colouring and extractive matter, &c. &c., and also deposited as acetates upon the upper part of the sides of the vessel. When carefully separated from the liquor, pressed and freed by a small quantity of water from the greater part of the foreign substances mixed with it, the crystalline form appears regular, though not very distinct.

By fresh treatment with alcohol, of sp. gr. 0.8349, and successive agitation with a little hydrate of lead freshly precipitated and æther, it separates, though with difficulty, from the fatty and colouring matters with which it is mixed; and it presents, even after some hours' exposure to a freezing mixture, acidulous crystals, united in concentric groups, the greater part of which are tetrahedrons and various modifications of this form.

These crystals dissolve in alcohol, and more rapidly when moist than after drying; the solution is bitter and slightly acid: it does not act either as an acid or as a base. It dissolves readily in acids, and forms during their concentration, especially in acetic and muriatic acids, a white flaky deposit, which retains acid strongly even after a number of washings: it appears, however, to be merely a hydrate of *cusparia*.

It is insoluble in the volatile oils and æther, but dissolves in small quantity in water, according to its temperature: 1000 parts of water, at 55° Fahr., dissolve 5.45 parts; at 212°, 11.04 parts. Alcohol of 0.8356 at 60° dissolves 37-100dths of its weight.

Nitric and fluoric acid at common temperatures renders *cusparia* yellowish green; sulphuric acid turns it reddish brown: neither iodic nor muriatic acid produces any visible alteration: the salts and the protoxides of iron and tin, the acetate and subacetate of lead do not precipitate its solutions. These characters are sufficient to distinguish it from *brucia*; like *brucia* and *salicine*, however, it possesses the property of being reddened by pernitrate of mercury.—This test will serve to detect the smallest admixture of *salicine* with sulphate of quina, even 1-743dth.

Tincture of galls precipitates *cusparia* abundantly both from water and alcohol: the alkalies dissolve it partially without altering it. Chlorine, iodine and bromine in the gaseous state colour it; the first of a straw yellow, and the two last brown. In the first case, the *cusparia* becomes more soluble in the state of a peculiar acid; the washings contained only traces of chlorine.

When heated to 130° Fahr. and gradually higher, *cusparia* first melts, and then loses 23.09 per cent. of its weight. It does not appear to suffer any alteration until it is heated to about 270° Fahr.; it then burns, without leaving any appreciable residue, and without subliming or phosphorescing: its vapour at a lower degree does not indicate azote as one of its elements; and by this it is also distinguished from *brucia*. The only circumstances which require notice in the *angustura* bark are, that it contains rather a large quantity of pectine and no copper.

Cusparia is not poisonous, even in large doses; its properties appear to approach those of quina, gentianine and *salicine*. When the watery and acid extract of the bark is treated with animal charcoal, alcohol, &c., there may be obtained by crystallization about 13-1000dths of the weight of the bark employed.—*Ibid, et Journ. de Chim. Méd. July, 1833.*